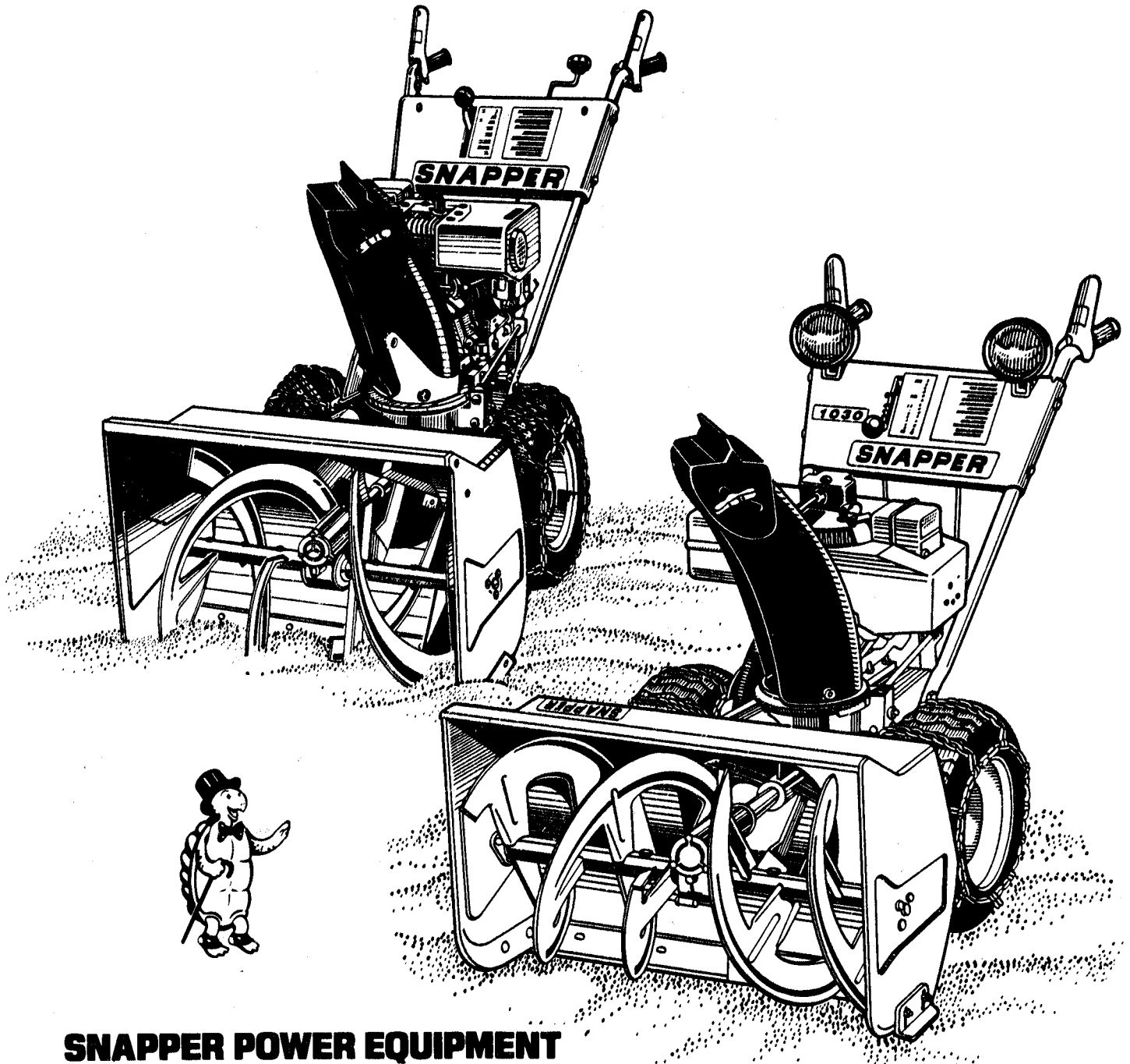


SERVICE MANUAL for  
**SNAPPER**® LARGE  
FRAME  
**2-STAGE SNOW THROWERS**



**SNAPPER POWER EQUIPMENT**  
McDonough, Georgia 30253  
A Division of Fuqua Industries



# SCOPE

This manual covers the recommended service, adjustment, troubleshooting and reconditioning procedures for Snapper Two-Stage, Walk Behind Snow Throwers.

The first digit in the model designation indicates engine horsepower while the next two digits indicates approximate width of the collector. The last digit is reserved for major design changes.

No special tools are required for overhauling these snow throwers. The normal complement of tools found in most repair shops will be adequate to perform all required repairs.

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# I- OPERATION & SERVICE

**INTRODUCTION:** The information in section one is generally the same as that presented in the Snapper Operator's Manual. It is repeated here for general reference and adjustment purposes.

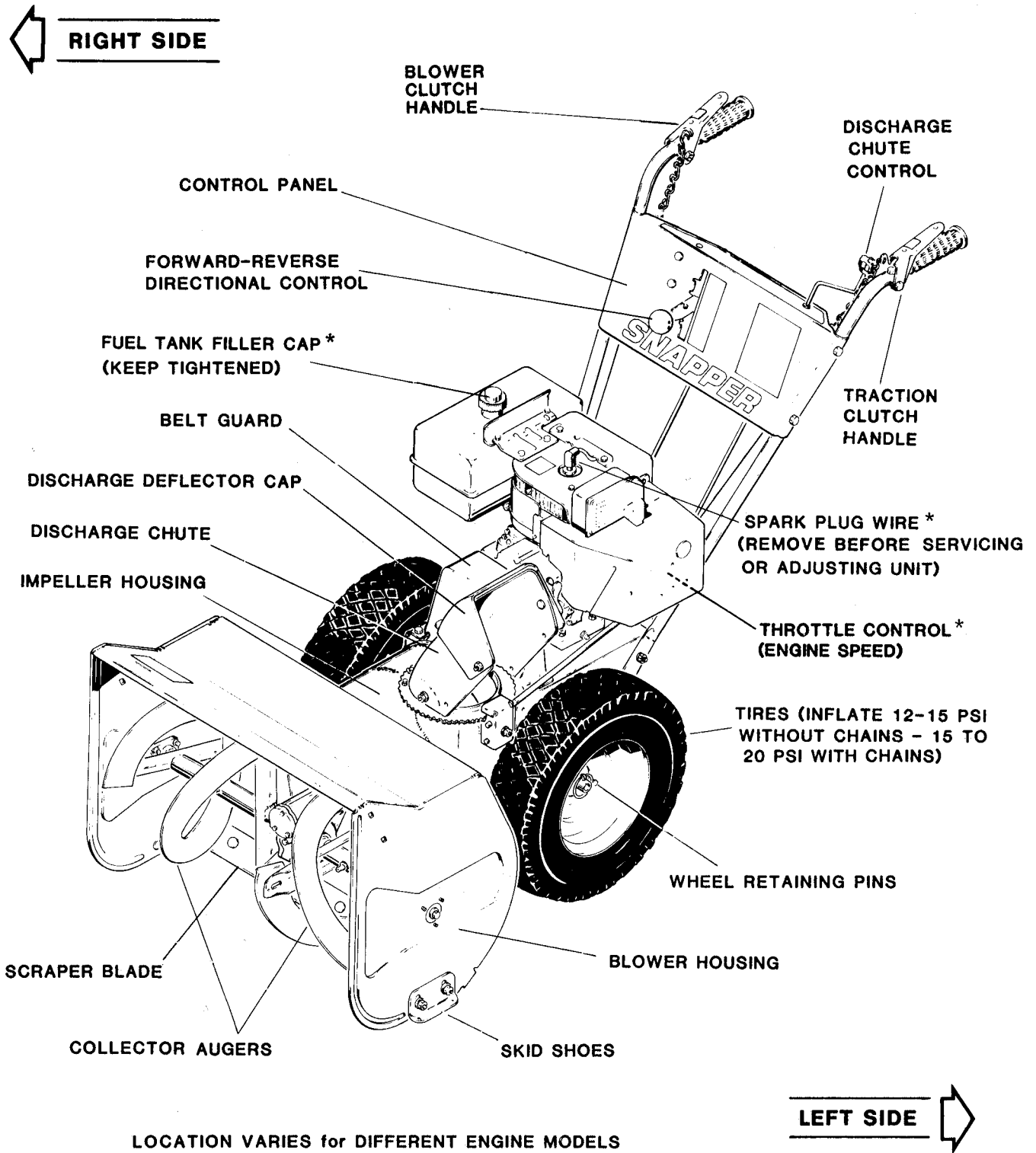


FIGURE 1.1 — LOCATION OF MAIN COMPONENTS ON TYPICAL MODEL

# OPERATING INSTRUCTIONS

Check and perform the following before each start-up.

## PRE-START PROCEDURE

- **ENGINE LUBE:** Check level and add oil if necessary of weight and grade specified in Engine Owners Manual.
- **FUEL SUPPLY:** After making sure unit is safely away from ignition producing appliances and in area where gasoline fumes can be dissipated, fill fuel tank with gasoline specified in Engine Manual.
- **CHECK TIRES** and bring pressure up to specifications – 12-15 psi without tire chains or 15-20 psi with chains.
- **CHECK UNIT** to make sure guards and shields are in place and tight. Also check blower housing to insure that it is free of all objects.
- **RESET RUNNERS** to suit area to be cleared. Lower skid shoes to provide greater clearance over gravel or raise the shoes for smooth, paved surface. Refer to skid shoe adjustment
- **RESET WHEELS** for traction if in free-wheeling position (that is, with retaining pins outside the wheel hubs). Pull pins and move into traction position, align holes in hubs with those in drive shaft then reinsert pins.
- **SET DEFLECTOR CAP** to throw snow desired distance. Loosen wing nut, push cap edge back even with the chute to throw snow up to 30 feet away or pull cap all the way out to throw snow only about three feet. Retighten the wing nut after repositioning cap. Always stop engine before repositioning.

## OPERATIONAL CONTROLS

Know how to stop the Snow Thrower quickly in preparation for possible emergency situations. Forward and reverse motion is stopped by releasing your grip on the **TRACTION CLUTCH** handle on the left handle bar. The blower auger blades and impeller fan will stop rotating within five seconds\* after releasing the **BLOWER CLUTCH** handle on the right. The engine is stopped by either turning the **ENGINE IGNITION** key to the left to OFF or by pulling the **THROTTLE CONTROL** knob rearward to OFF. Other operational controls are discussed where pertinent under the following operating procedures.

\* NOTE: If rotation continues after five seconds, refer to the **BELT AND CLUTCH CABLE** readjustment instructions.

## OPERATION

Whenever possible, push Snow Thrower outdoors before starting. If the unit must be started inside your garage, for example, make sure doors are wide open to provide maximum ventilation. Move the unit outdoors as soon as possible after starting. After performing the pre-start checks and services described earlier, proceed as follows:

**THROTTLE CONTROL:** Move control knob into FAST position.

**CHOKE:** Refer to Engine Manual for priming and/or choking details.

**ENGINE IGNITION:** Insert key and turn to ON position.

**STARTING ENGINE:** On Manual Start models, pull recoil start handle in smooth steady motion until engine starts. With Electric Start, plug the three-pronged starter cable into a grounded 110-volt power receptacle and connect the other end to engine start system then turn ignition switch to ON and push button (on engine or in cable) and hold until engine starts. NOTE: Release the button if engine does not start after 30 seconds to prevent overheating of the starting motor. Locate and correct cause of starting problem before cranking again. Detach cable from outlet and from the engine.

**WARM-UP PERIOD:** Allow brief warm-up outside with clutches released to avoid stalling cold engine. Reset Choke as instructed in Engine Manual as the unit warms up.

**OPERATION:** Select desired traction speed by adjusting **DIRECTIONAL CONTROL**, depress **TRACTION CLUTCH** handle and drive unit to area to be cleared then depress **BLOWER CLUTCH** handle and proceed to blow snow. The **THROTTLE CONTROL** should normally be in the FAST position for best result under most conditions. CAUTION: If clogging occurs, back unit away from snow bank, release both **CLUTCH** handles and, as a further precaution, stop the engine and remove spark plug wire before clearing the snow from the housing and/or discharge chute.

**BEFORE STOPPING:** Move unit to cleared area, release **TRACTION CLUTCH** handle and run up to top speed with **BLOWER CLUTCH HANDLE** depressed to clear housing of slush and snow thus preventing freeze-up of the impeller upon restarting next time.

**STOPPING PROCEDURE:** Move key in **ENGINE SWITCH** to OFF position. With **TECUMSEH** engine, move control to FAST position after stopping. This is done to provide the best position to break any ice formation inside the throttle cable and thus prevent kinking of the cable upon restarting.

# SERVICE PROCEDURE

## LUBRICATION SERVICES

Refer to the Engine Manual for lubrication requirements on the engine powering your Snow Thrower.

Snow Thrower unit has six grease fittings, four on the augers and two on the auger shaft bearings as shown in figure 2. The unit also has a lube checkpoint at the front of the auger-impeller gearbox shown in figure 3. Service these and the other general lube points as follows:

**AUGER LUBRICATION: ONCE EACH YEAR**, preferably at the end of the winter season, remove the two shear bolts, apply grease to the fittings then spin the auger to work the grease out along the auger shaft. Continue greasing and spinning augers until grease appears at both ends of each auger tube. Reinstall shear bolts and nuts after servicing. This procedure will prevent the auger shaft from rusting to the auger tube.

**BEARING LUBE: ONCE EACH YEAR**, apply one or two shots of grease from gun to the bearing grease fittings located at the ends of the auger shaft just inside the blower housings.

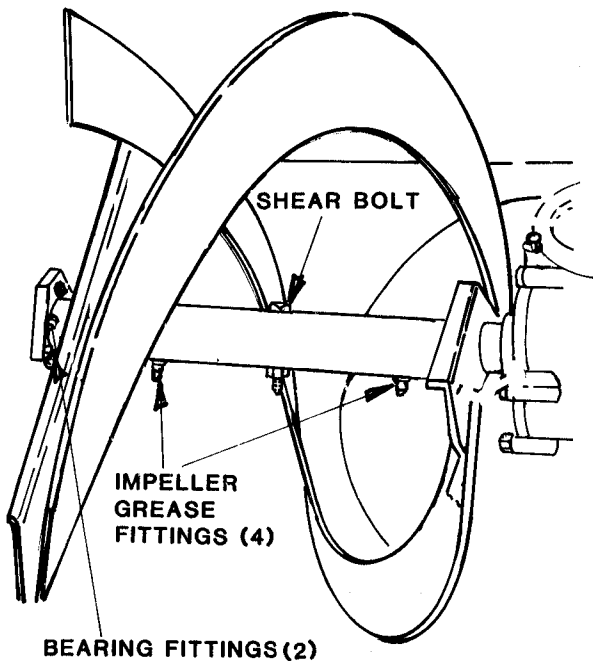


FIGURE 1.2 — GREASE FITTING LOCATIONS

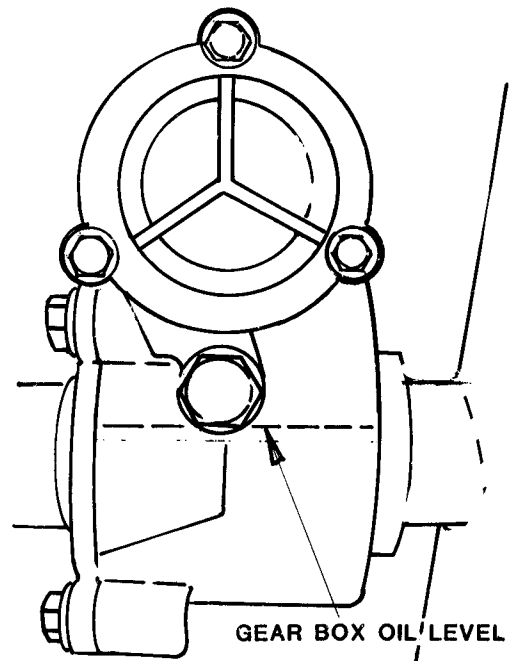


FIGURE 1.3 — GEAR BOX OIL LEVEL

**GENERAL LUBE POINTS: ONCE EACH YEAR**, or more often if rust formation hampers operation, spread a light coating of grease on the chute crank worm and on the underside of the gear ring at the base of the discharge chute. Also squirt oil from oil can into the gap between the inside of the discharge chute and the outside of the discharge flange of the blower housing. Crank chute back and forth while oiling to spread lubrication evenly over both surfaces. Although not absolutely necessary, you may want to remove each wheel at the end of the season and apply a coating of grease on the axle shafts to prevent rust and allow the wheels to be moved more easily from transport to traction mode during the next season.

**GEARBOX LUBE: AFTER EACH 25 HOURS** of operation (or each time the engine oil level is checked) remove the plug at the front of the gearbox and check the oil level. With the Thrower on a flat, level surface, the oil should be even with the lower edge of the check hole. Use an oil can containing the same weight and grade of oil specified for the engine crankcase to bring the level up to the point of overflowing from the hole. Reinstall the oil plug after servicing. **NOTE:** Overfilling will cause oil to leak out of vent hole in gear box.

## CHUTE CRANK SERVICE

If the chute does not crank easily after lubricating as specified under **GENERAL LUBE SERVICES**, loosen both nuts on the outside of the crank worm bracket as shown in figure 4 and move the bracket slightly away from the chute gear ring or back in toward the ring until the chute again cranks with minimum effort. Retighten inside nut first then jam the outside nut tight against the inside nut to lock at the new setting.

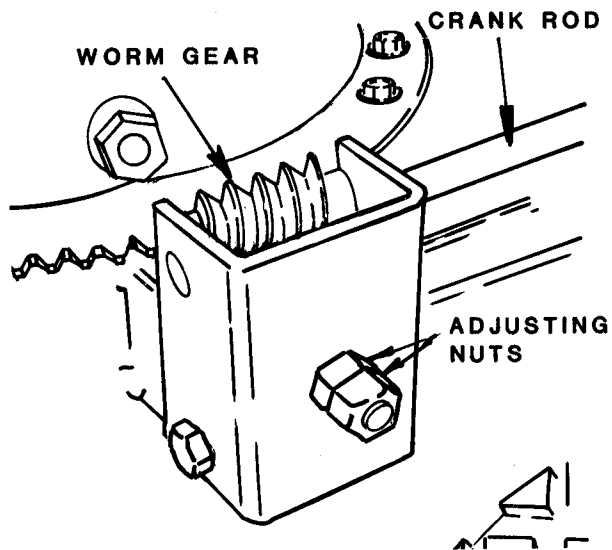


FIGURE 1.4 — CHUTE CRANK WORM GEAR

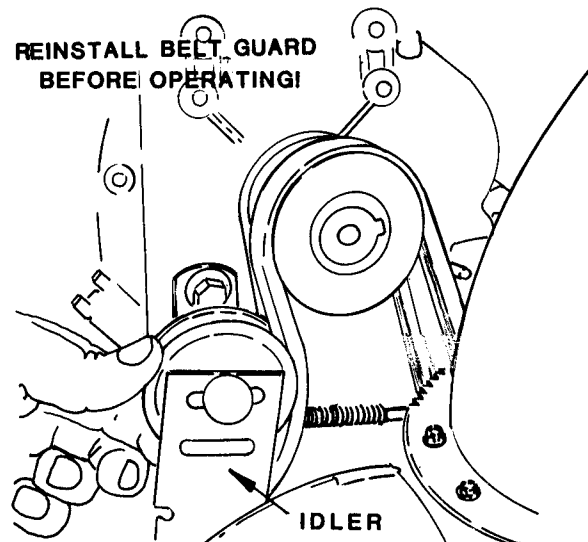


FIGURE 1.5 — BELT TENSION ADJUSTMENT

## BELT SERVICE

Belts do not require attention at any specific interval but should be checked if performance deteriorates as this could be caused by slippage due to worn or loose belts. Check and adjust tension of clutch cables first as described in the CLUTCH ADJUSTMENT section then check the belts if poor performance continues after clutch cable tension has been corrected. Make sure the engine is stopped and the spark plug wire disconnected before working on the belts.

**NOTE:** Blower rotation should cease within five seconds after the clutch handle is released. If rotation continues after five seconds, cable may be too taut. If readjusting the cable does not correct the stopping time, check to make sure the idler return spring is connected and that the idler is properly set.

**GUARD REMOVAL:** Remove the two self tapping screws securing the guard to the frame then tilt the top of the guard toward the discharge chute and lift off the left side. Reverse this procedure to reinstall the belt guard.

**BELT TENSION:** Tension on the traction drive belt is automatically maintained by an individual idler spring. After removing the belt guard, check to make sure this spring is intact and properly hooked up to the frame and idler arm. If the spring is properly connected, check for excessively worn belts. Notice the return spring on the idler for the blower drive — this spring activates the brake. The idler should always return to braking position! Tension of the blower drive belt, which is on the outside groove of the engine drive pulley, can be adjusted by loosening and repositioning the idler pulley. To increase tension loosen the idler pulley retaining nut, hold the idler arm and push the pulley tighter against the belt. Retighten nut after repositioning and check for proper clutching action with blower handle released. Tension of the traction belt on the inside groove is non-adjustable. Before reinstalling belt guard check to make sure the wire belt guide on the right side is about 1/16" away from the outside surface of the blower belt with clutch engaged. Bend the guide in or out to correct clearance.

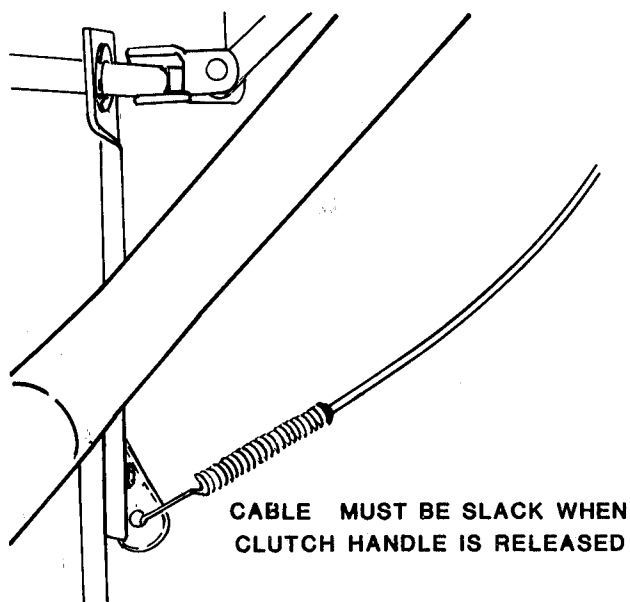


FIGURE 1.6 — CLUTCH CABLE SLACK

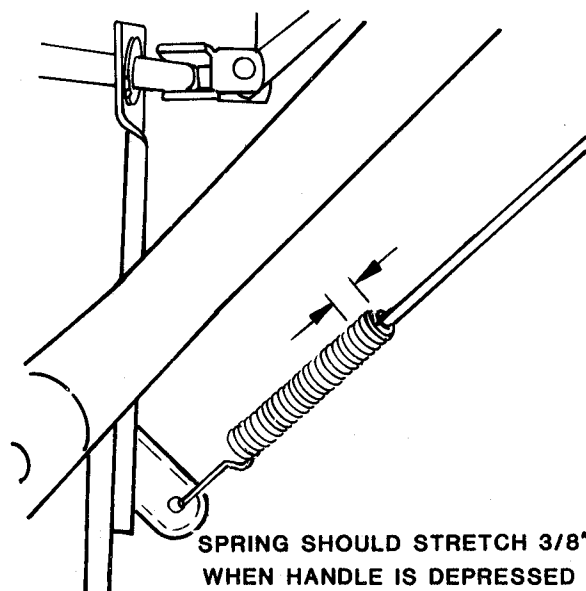


FIGURE 1.7 — CLUTCH CABLE TENSION

## CLUTCH CABLE ADJUSTMENT

If slippage is noted, check tension of both clutch cables. When properly adjusted, the cables should be completely slack with clutch handle released and taut when the handle is fully depressed. The springs on both cables should deflect  $3/8$ " when the handle is depressed. To adjust shorten or lengthen cable length by repositioning the "S" hooks at top of the cable to different chain links.

## SKID SHOE ADJUSTMENT

The skid shoes should be lowered to raise the blower housing to clear gravelled or rough surfaces, or adjust until almost even with the edges of the housing to allow clearing down to smooth paved surfaces. Note that the skid shoes can be installed upside down to track better over icy or hard-packed surfaces. To adjust the skid shoes, block under the lower edge of the blower housing, loosen the retaining nuts and slide shoe up or down to desired height then retighten the nuts. Set both skid shoes in the same position.

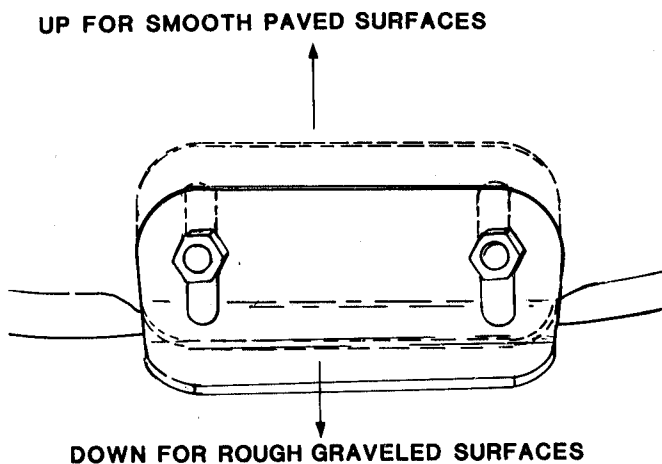


FIGURE 1.8 — SKID SHOE ADJUSTMENT

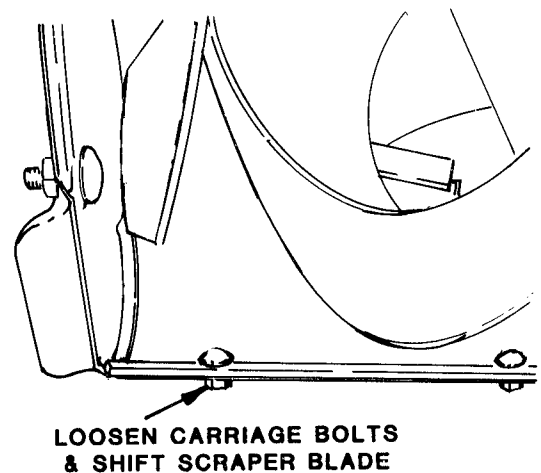


FIGURE 1.9 — SCRAPER BLADE ADJUSTMENT

## SCRAPER BLADE

Your Snow Thrower is equipped with an adjustable scraper on the inside leading edge of the collector housing. Its purpose is to prevent wear and damage to the housing. When the scraper itself wears down close to the lower edge of the housing, loosen the five nuts on the backside of the housing and slide the scraper downward. Retighten the five nuts after repositioning. Replace the scraper if badly nicked or when it no longer can be adjusted below the edge of the housing.

## ACCESSORY KITS

**ELECTRIC START:** All engines are equipped to receive electric start components which allow easy starting from three-pronged 110-volt household outlet. Order Kit #6-0464 for Briggs & Stratton 8 HP engines or Kit #6-0463 for Tecumseh 5HP engines. In Canada order Kit No. 6-0475 for Tecumseh 5 H. P. engine.

**TIRE CHAINS:** Maximum traction in deep snow can be obtained by installing the tire chains available from your Snapper Dealer. Order Kit #6-0049.

**DRIFT CUTTER:** Cutter bar easily installs on top edge of blower housing. Extends above housing to slice into high banks and knock the snow down into the path of the collector. Order Snapper Kit #6-0472.





# II - TROUBLE SHOOTING SECTION

When problems occur, always look for the simplest causes first, even though they may seem too obvious to consider. For example, don't go ahead with overhaul without first eliminating other possible and easier to remedy causes for the drive problem. The guide below has the simplest cause listed first.

PROBLEM	POSSIBLE CAUSE(S) AND PROBABLE REMEDY
ENGINE WILL NOT START	<ul style="list-style-type: none"> <li>• KEYSWITCH not in ON position.</li> <li>• THROTTLE CONTROL in slow position — move to fast position.</li> <li>• CHOKE CONTROL not in choke — move to choke position.</li> <li>• SPARK PLUG WIRE disconnected — reconnect.</li> <li>• FUEL TANK empty — replenish supply.</li> </ul>
ENGINE STOPS SUDDENLY	<ul style="list-style-type: none"> <li>• OUT OF FUEL — replenish supply.</li> <li>• SPEED TOO LOW for conditions — increase setting.</li> <li>• IMPELLER JAMMED by impacting solid object — clear impeller.</li> </ul>
ENGINE RUNS ROUGH	<ul style="list-style-type: none"> <li>• SPARK PLUG FOULED — service or replace plug.</li> <li>• CHOKE LEFT ON too long — return to no choke position.</li> <li>• WATER IN FUEL SYSTEM — drain system and add new fuel.</li> </ul>
BLOWER NOT THROWING SNOW	<ul style="list-style-type: none"> <li>• ENGINE SPEED TOO LOW for conditions — increase setting.</li> <li>• GROUND SPEED TOO FAST for snow depth — slow speed.</li> <li>• BELT SLIPPING — replace worn belt or adjust idler to increase tension.</li> <li>• CLUTCH CABLE out of adjustment — correct setting.</li> <li>• AUGER BOLTS SHEARED — replace shear bolts.</li> </ul>
AUGER STOPS ROTATING	<ul style="list-style-type: none"> <li>• SHEAR PIN missing or broken — replace shear pin.</li> <li>• BELT BROKEN or slipped off sprocket — replace or correct tension.</li> <li>• KEY ON AUGER SHAFT sheared — replace key (in gear box).</li> <li>• GEAR TEETH SHEARED — replace worm and gear in gear box.</li> </ul>
WHEELS NOT DRIVING	<ul style="list-style-type: none"> <li>• DIRECTION CONTROL in neutral — shift to desired speed.</li> <li>• CLUTCH CABLE out of adjustment — correct tension.</li> <li>• IDLER not tightening drive belt — correct spring tension.</li> <li>• DRIVE GEAR KEY sheared — replace key.</li> <li>• DRIVE DISC RUBBER worn excessively — replace.</li> </ul>
OIL LEAKING	<ul style="list-style-type: none"> <li>• ENGINE DRAIN PLUG not tight or missing — tighten or replace.</li> <li>• GEAR BOX overfilled — drain excess to proper level.</li> <li>• GEAR BOX CHECK PLUG loose — tighten.</li> <li>• CHAIN CASE GASKET broken or housing halves not tight.</li> <li>• AUGER SHAFT OIL SEALS faulty — replace seals.</li> </ul>
EXCESSIVE NOISE AND/OR VIBRATION	<ul style="list-style-type: none"> <li>• ENGINE MUFFLER loose or faulty — tighten or replace.</li> <li>• ENGINE MOUNTING BOLTS loose — tighten.</li> <li>• RUBBER DRIVE DISC loose or worn — replace or tighten fasteners.</li> <li>• IMPELLER damaged — repair or replace.</li> </ul>



# III - OVERHAUL & REPAIR SECTION

The Snapper Snow Thrower is designed for easy servicing and repair. It is comprised of traction drive unit which includes the engine, belt drive, driven disc, chain drive differential and axle. It also includes the collector unit composed of the gear box, augers, impeller and blower housing. Repairs of the traction drive components can normally be made without disturbing collector components. The traction unit can be split from the collector unit without complete separation of the two when collector repairs are needed. Repair of the two units are described separately in the following.

Use the following procedure to split the traction unit from the collector to repair or replace augers, impeller or gear box components.

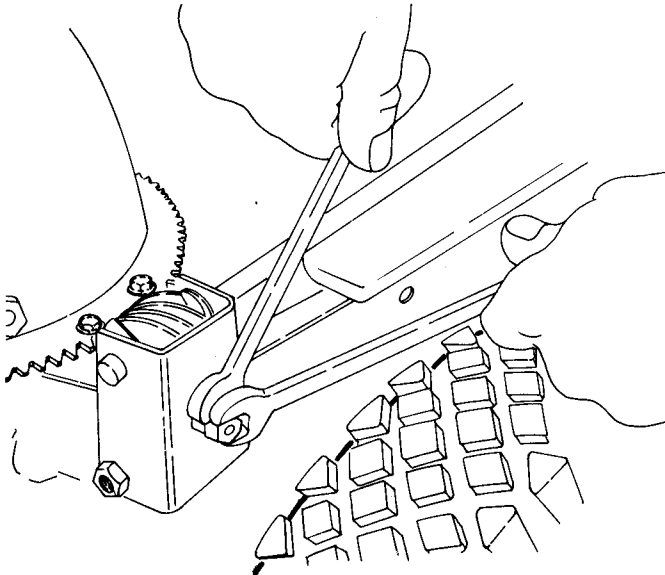


FIGURE 3.1 — REMOVING CRANK JAM NUTS

## SPLITTING UNITS

**STEP 1.** Disconnect the chute crank worm assembly from the side of the main frame by removing the two jam nuts (figure 3.1), then pull the capscrew holding the worm gear bracket to the frame (figure 3.2) and slide the crank worm components toward the rear of the unit and out of the way.

**STEP 2.** Remove the two self tapping screws securing the belt guard, tilt the top of the guard toward the discharge chute and lift off over the belts.

**STEP 3.** To disconnect the belts, loosen the blower belt idler and unhook the idler spring from the case (figure 3.3). Slip both belts out

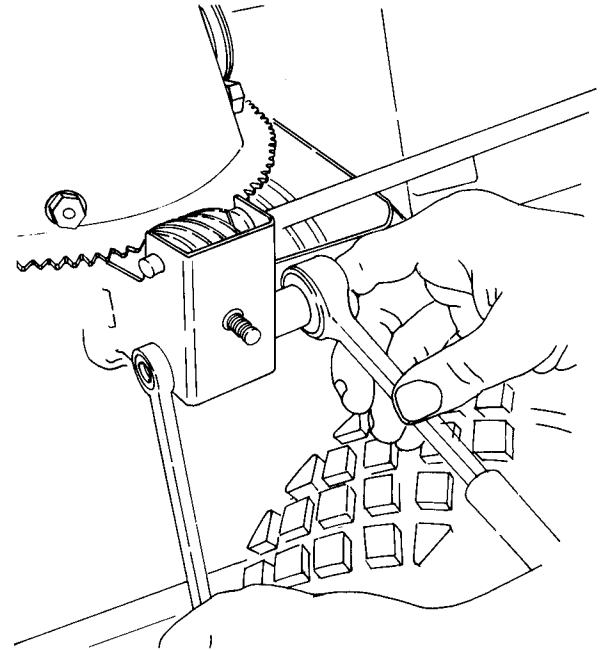


FIGURE 3.2 — REMOVING CRANK CAPSCREW

of the grooves in the engine pulley and move them so they will not interfere with separation of the units (figure 3.4).

**STEP 4.** Loosen the bolts on the bottom tabs and remove the bolts from the top and sides of the frame (figure 3.5). **CAUTION:** Traction unit will fall away when the last bolt is removed unless held up. The power or traction unit can now be lowered away from the collector unit. **NOTE:** When splitting these units, do not allow the handles to fall all the way to the floor as the tabs on the left side of the frame could bite into and damage the traction drive gear. Lower the handles only about half way down to prevent this (figure 3.6).

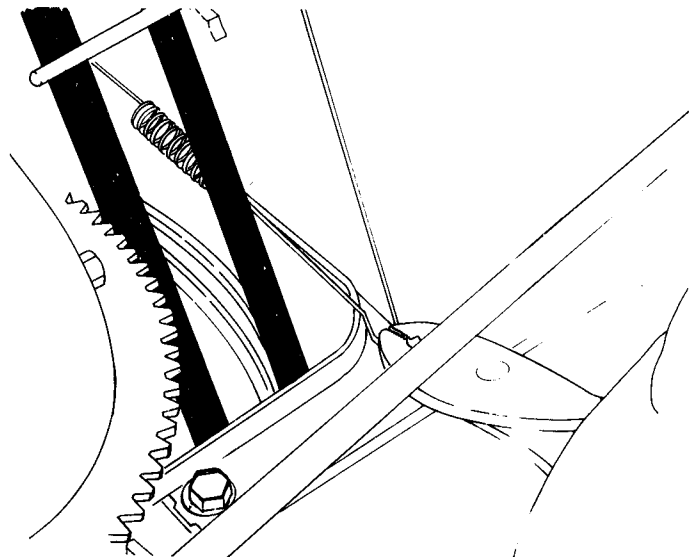


FIGURE 3.3 — UNHOOKING IDLER SPRING

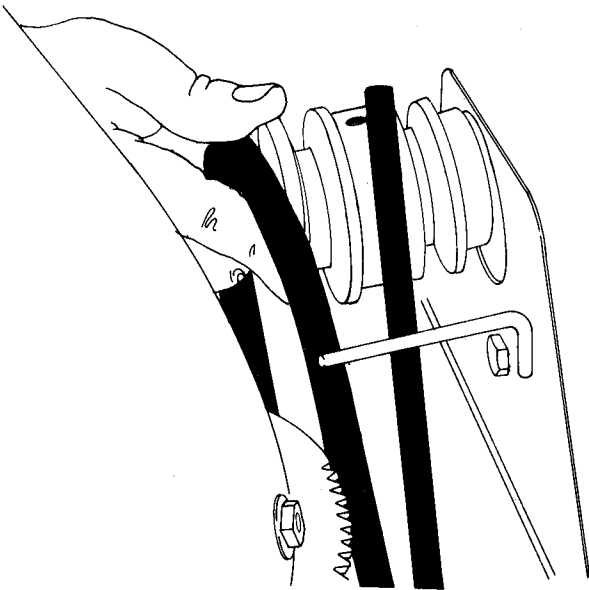


FIGURE 3.4 — SLIPPING BELTS OFF PULLEYS

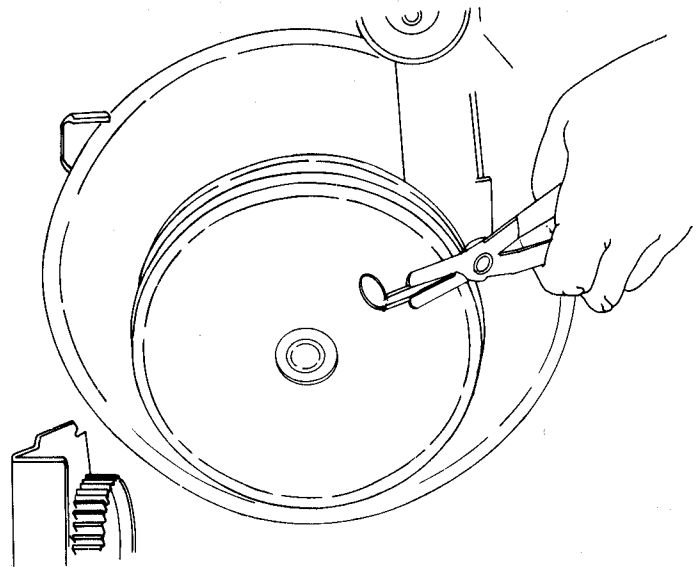


FIGURE 3.7 — REMOVING DRIVE PLATE RETAINER

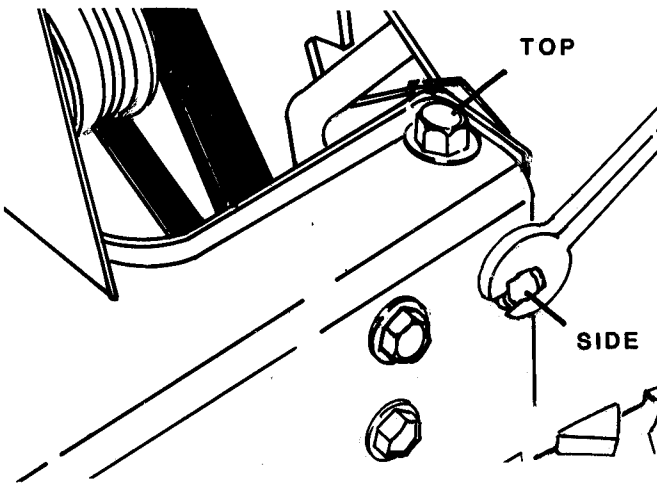


FIGURE 3.5 — REMOVING FRAME BOLTS

### DRIVE PLATE AND BELT SHEAVE

With the units split, the drive plate and blower belt sheave have to be pulled before the collector components can be removed. Remove the plate and sheave as follows:

STEP 1. Use a pair of snap ring pliers to remove the retaining ring and washer on the drive plate end of the impeller shaft. Slide the drive plate off the end of the shaft (figure 3.7 and 3.8). The drive plate bushings can now be replaced if necessary.

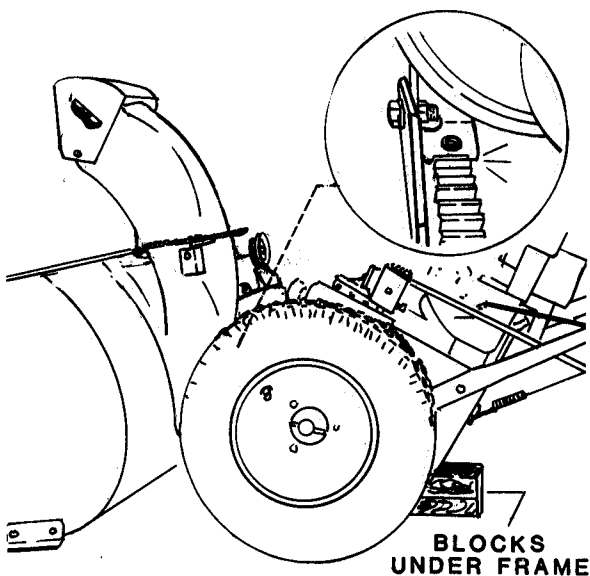


FIGURE 3.6 — TRACTION AND BLOWER UNITS SPLIT

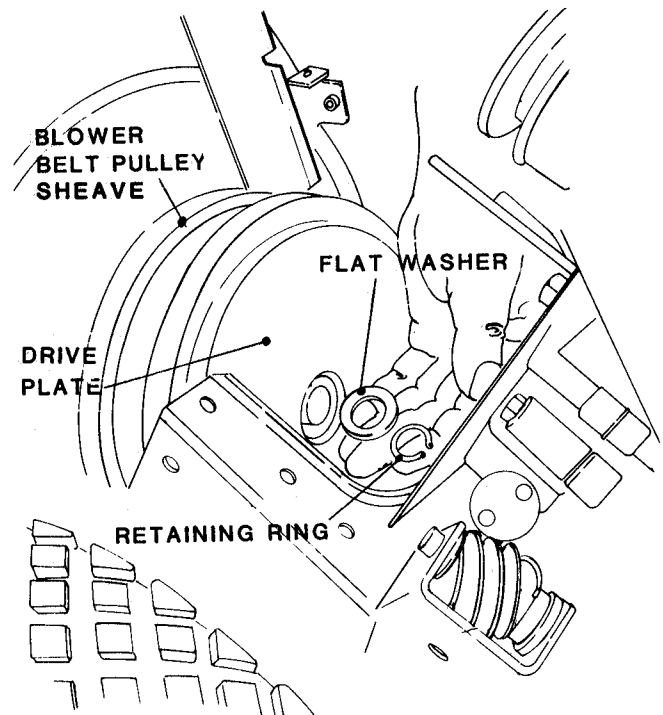


FIGURE 3.8 — DRIVE PLATE AND PULLEY DETAIL

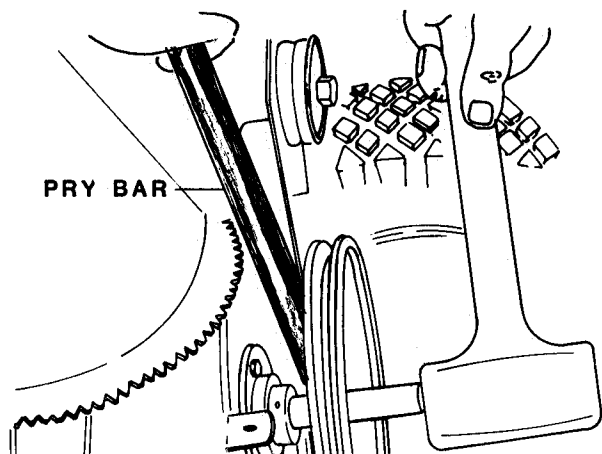


FIGURE 3.9 — BUMPING SHAFT TO REMOVE PULLEY

**STEP 2.** Count the number of washers used as spacers between the drive plate blower belt sheave (use same number when re-installing). Loosen the two setscrews on the sheave collar. Place a crow bar behind the sheave as shown in figure 3.9 and bump the end of the impeller shaft, then slide the sheave off the shaft. Remove the woodruff key from the slot in the impeller shaft. With file or emery cloth, remove burrs or marks from impeller shaft as housing bearing has close fit.

**STEP 3.** Loosen the setscrews on the housing bearing to allow pulling the impeller shaft out of the housing (figure 3.10). Replace the housing bearing if in bad condition at this point. To replace, remove the three flange nuts from the bearing housings then slide the bearing off and install replacement. The blower belt idler can also be replaced, if needed, at this time (figure 3.11).

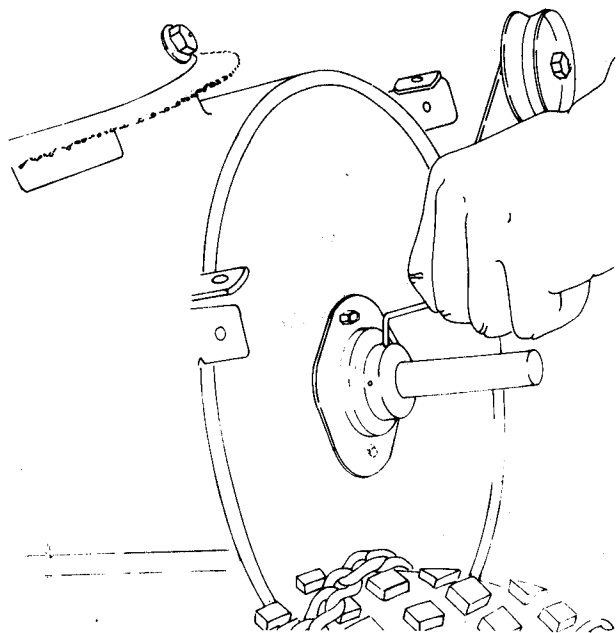


FIGURE 3.10 — REMOVING BEARING SETSCREWS

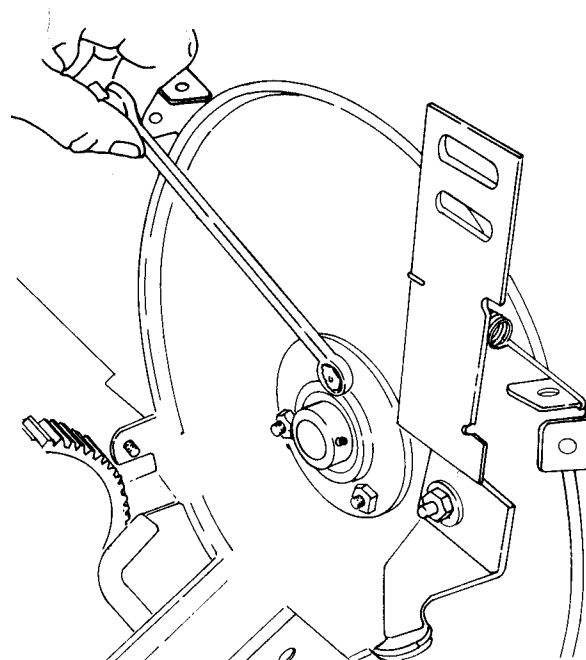


FIGURE 3.11 — REMOVING BEARING FLANGE NUTS

### AUGER - IMPELLER REMOVAL

After the drive plate, blower sheave and key are removed and the housing bearing setscrews loosened, the auger-impeller-gear box can be pulled as a unit using the following procedure:

**STEP 1.** Remove the three screws securing the two auger shaft bearings to the insides of the blower housing.

**STEP 2.** Remove the capscrews and flat washers from both ends of the auger shafts. Don't forget these flat washers during re-assembly. (Figure 3.12).

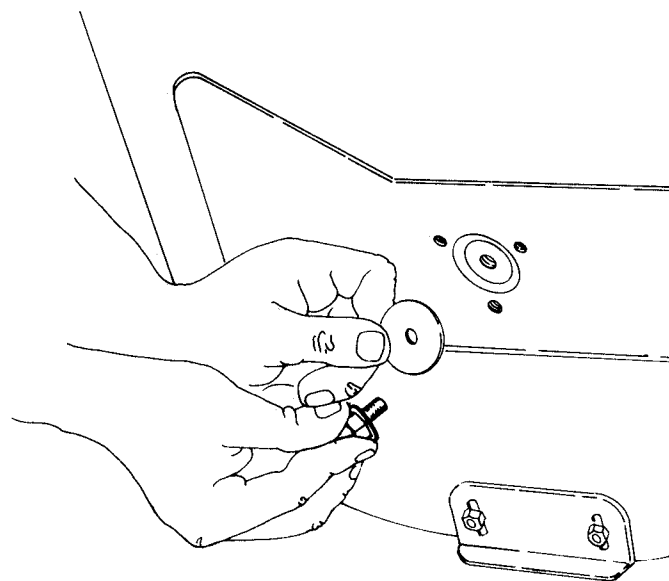


FIGURE 3.12 — AUGER SHAFT FLAT WASHERS

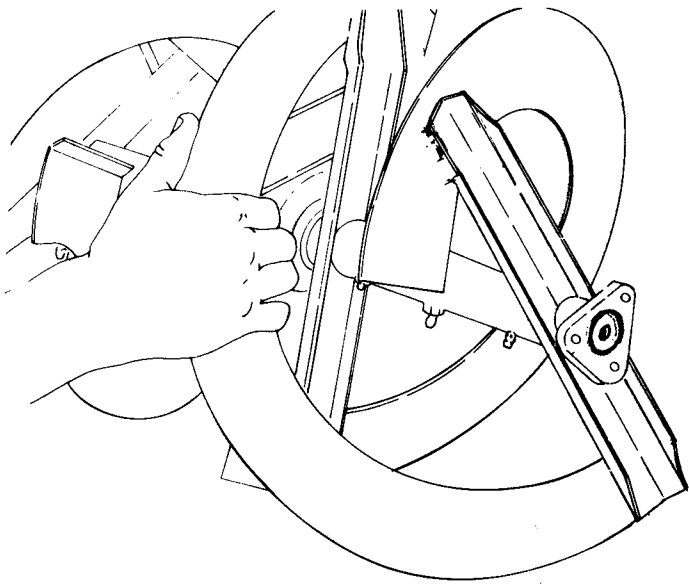


FIGURE 3.13 — PULLING AUGER ASSEMBLY

**STEP 3.** The auger-impeller-gear box assembly can now be removed. Brace your feet against the ends of the collector housing, grasp the augers and pull until the impeller shaft clears the housing bearing. (Figure 3.13).

### AUGER REPLACEMENT

Slide the bearings off the ends of the auger shaft, remove the shear bolts and pull the augers off the shaft ends. Inspect the shaft and remove any rust formation then apply a liberal amount of grease on the entire surface before installing the reconditioned or replacement augers.

**NOTE:** When reinstalling the auger-impeller assembly, make sure the grease fittings on the shaft bearings are positioned facing the front of the blower housing where they can be serviced. (Figure 3.14).

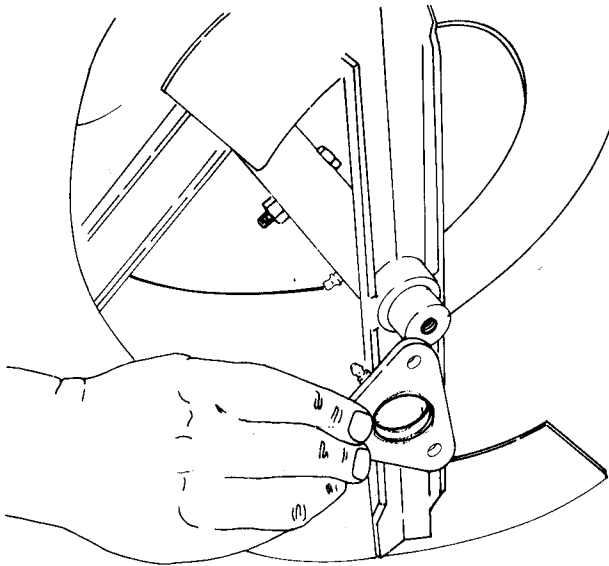


FIGURE 3.14 — GREASE FITTINGS ON BEARINGS

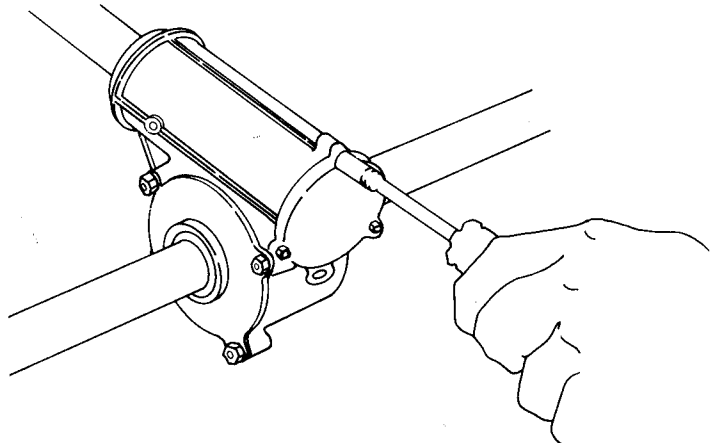


FIGURE 3.16 — REMOVING END CAP SCREWS

### IMPELLER REMOVAL

Impeller removal is required only if the impeller or impeller shaft is damaged or if the gear box is to be disassembled. The impeller is a light press fit on the end of the impeller shaft and is secured by two roll pins. To remove the impeller, drive the roll pins out of the hub and pull the impeller off the end of the shaft. (Figure 3.15).

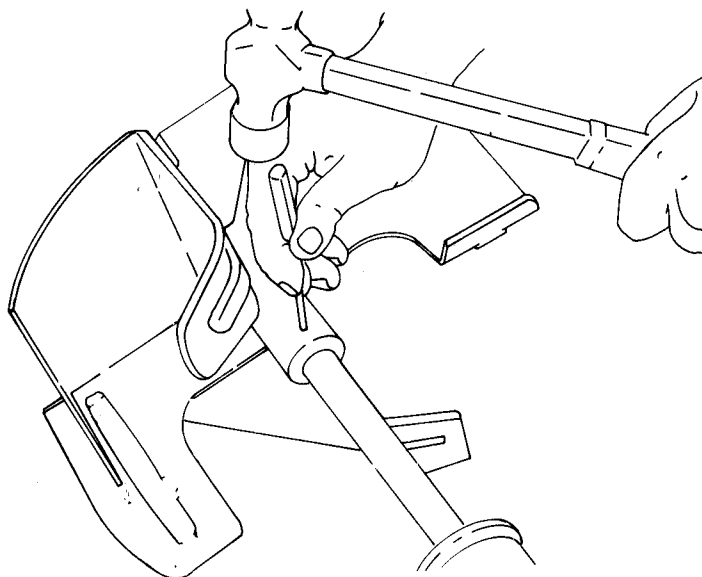


FIGURE 3.15 — DRIVING IMPELLER ROLL PINS OUT

### GEAR BOX OVERHAUL

Before proceeding with disassembly of the gear box, remove the drain plug from the front of the gear box and tilt the unit forward to allow the oil to completely drain. Then disassemble as follows:

**STEP 1.** Remove the three end cap retaining screws, tap the edge of the cap outward lightly to break the paint seal then slide the cap off. (Figure 3.18).

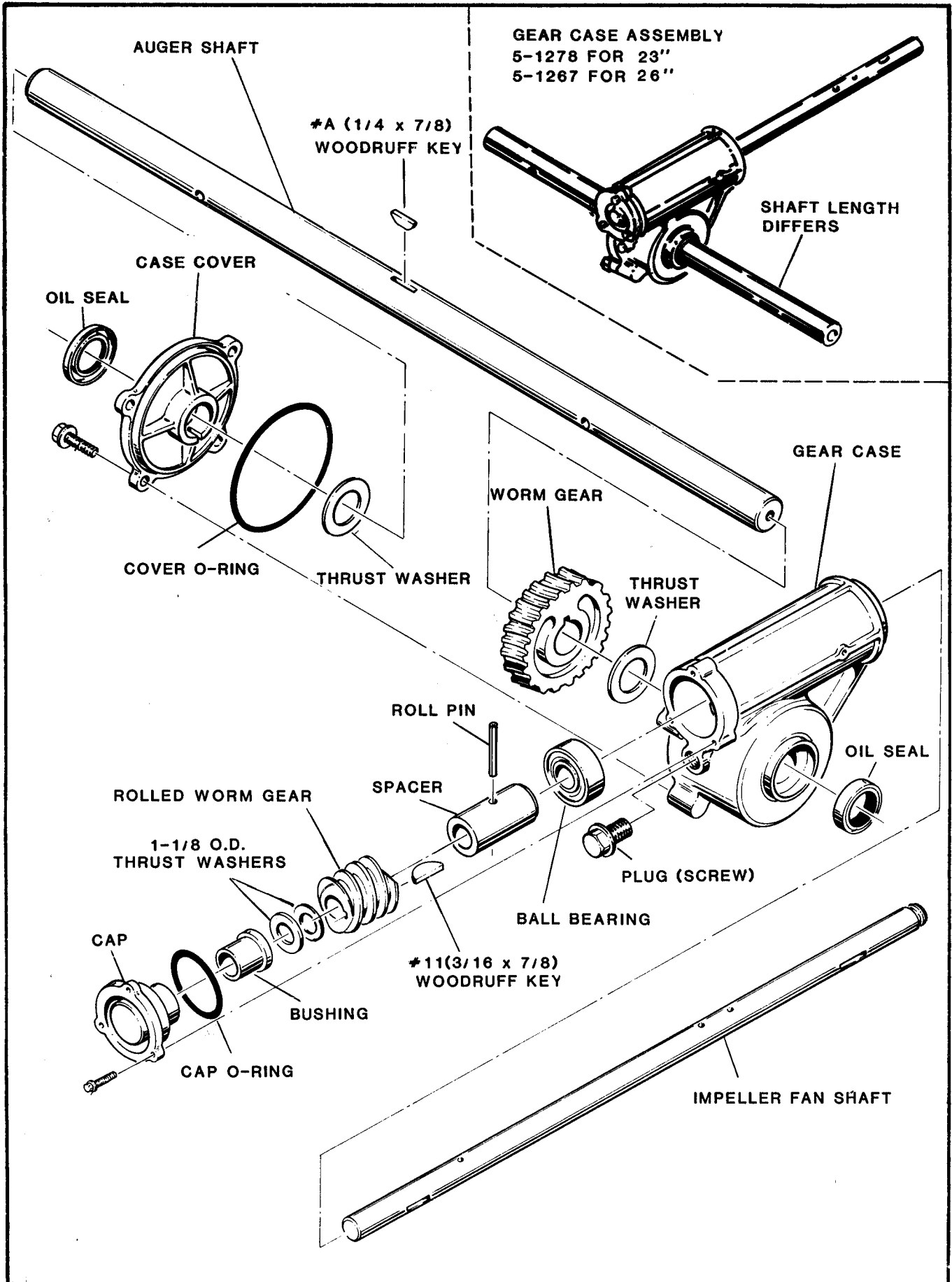


FIGURE 3.17 — GEAR BOX EXPLODED VIEW

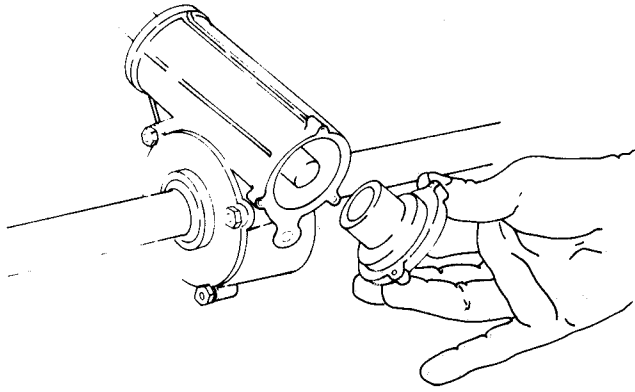


FIGURE 3.18 — REMOVING END CAP

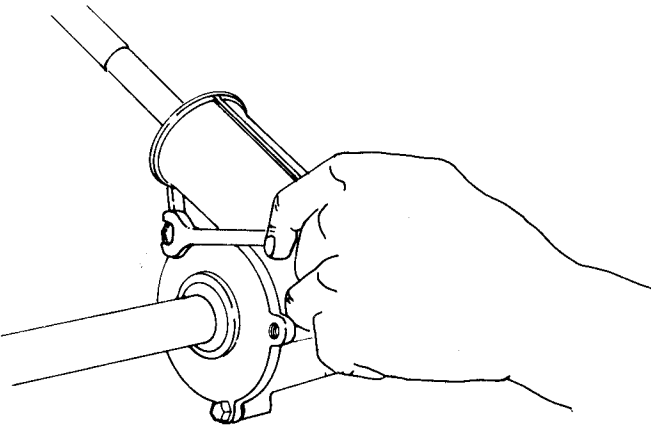


FIGURE 3.19 — REMOVING COVER SCREWS

STEP 2. If the impeller has been removed, turn the auger shaft (if possible) and pull the impeller shaft out through the cap end. Remove completely if in need of repair or just pull the rolled worn gear out enough so that it is no longer in mesh with the worm gear on the auger shaft.

STEP 3. Remove the cover retaining screws (Figure 3.19) and pull the cover. Tap lightly if necessary to break the paint seal.

STEP 4. Pull the auger shaft out of the housing if necessary to replace the housing oil seal or to replace the worm gear or woodruff key. When re-assembling these components don't forget to install a thrust washer on both sides of the gear.

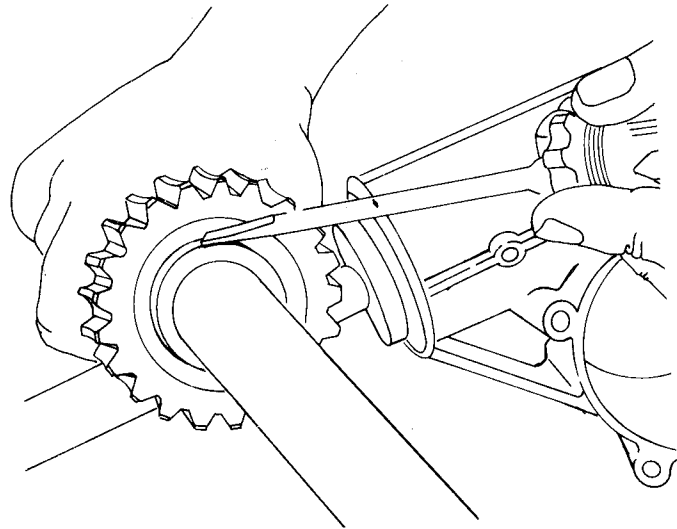


FIGURE 3.21 — GROOVED SIDE OF GEAR

STEP 5. Carefully inspect the housing, end cap, and cover. Replace "O" rings, oil seals and cap bushing as needed. Also check the impeller shaft ball bearing and replace if needed. Thoroughly clean all components before re-assembling in the sequence illustrated in Figure 3.17.

STEP 6. When re-assembling the gear box make sure the grooved side (pointed out in Figure 3.21) of the auger shaft worm gear is installed toward the inside of the case housing.

STEP 7: Test rotate the impeller and auger shafts and add oil (of same weight and grade as used in engine) to bring the level up to the point indicated in Figure 1.3, Section 1 of this manual.

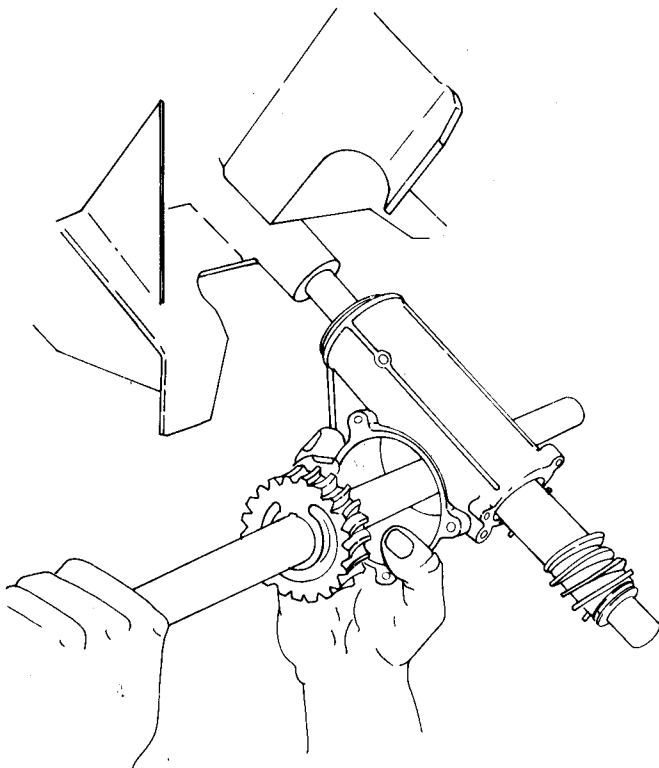


FIGURE 3.20 — PULLING AUGER SHAFT



## REASSEMBLY PROCEDURE — COLLECTOR COMPONENTS

Reassembly of the collector components involves the following steps:

**STEP 1:** Before installing the augers on the auger shaft, remove rust from the surface of the shaft by polishing with emery cloth then coat the surface with Snapper 00 or equivalent grease. Slide the augers onto the shaft and secure each with a shear bolt and nut.

**STEP 2:** Place a bearing plate over both ends of the auger shaft then slide the auger-gear box-impeller assembly into position inside the collector housing. **NOTE:** Carefully guide the

**STEP 5:** Tighten the setscrews on the collar of the blower housing bearing, insert the key in the keyway in the impeller shaft, install a flat washer next to the bearing then slide the blower belt sheave into position on the impeller shaft. Securely tighten the setscrews on the blower sheave.

**STEP 6:** Install the thrust washers (same number as removed earlier) next to the blower sheave then install the drive plate, install a flat washer on the outside then secure with the retaining ring.

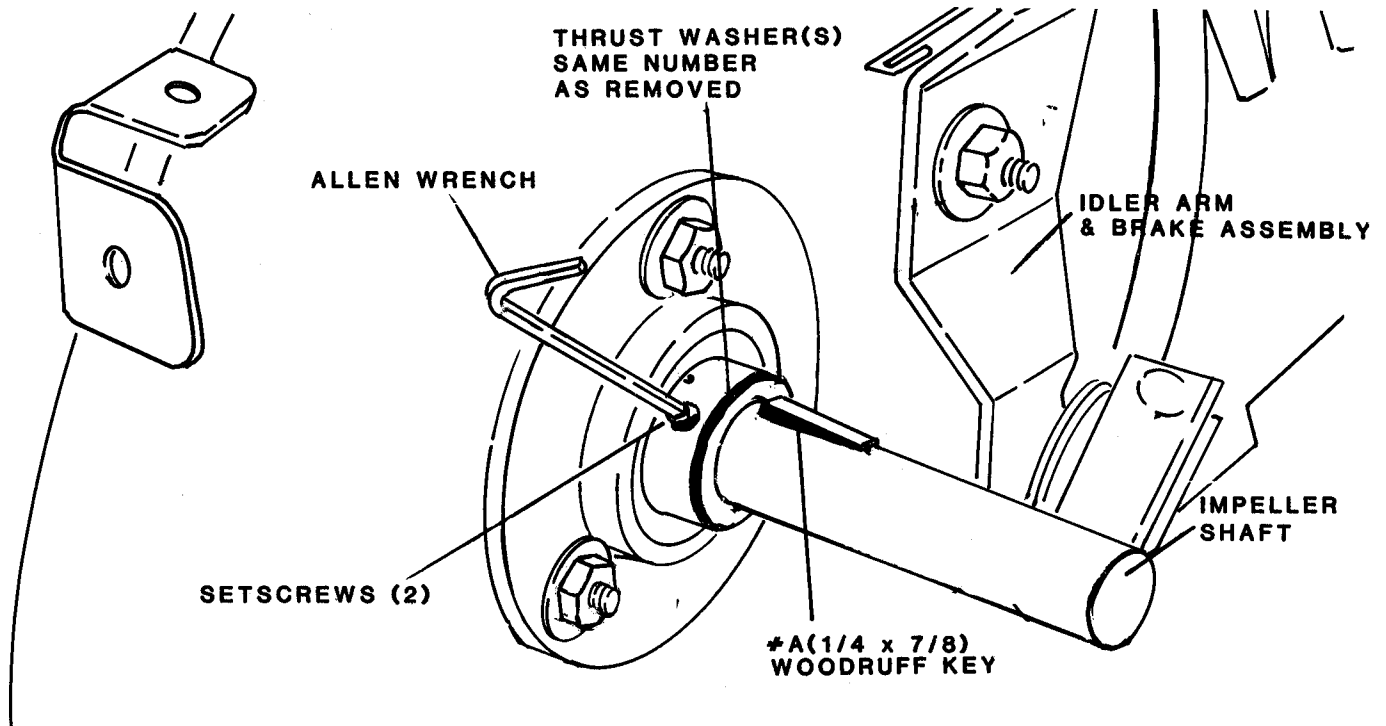


FIGURE 3.22 — INSTALL KEY IN IMPELLER SHAFT & TIGHTEN BEARING SETSCREWS

impeller shaft through the bearing in the center of the housing to avoid damaging the bearing.

**STEP 3:** Turn the bearing plates so that the grease fittings are accessible from the front, align the three holes in the plates with those in the housing then secure each bearing plate with three flanged screws and flanged nuts.

**STEP 4:** Secure both ends of the auger shaft with a flat washer and 1/2" long capscrew as shown in figure 3.12

**STEP 7:** The collector unit can now be reconnected to the traction unit. When raising the traction unit, make sure the rod stays on the outside of the brake idler to prevent bending these items. When the units are joined, install and tighten the four upper bolts in the tabs then securely tighten the bottom frame tab bolts.

**STEP 8:** To complete the reassembly procedure, work the belts back into the grooves, reconnect the idler springs and reinstall the belt cover. Readjust belt tension as described on page 1.4 of this manual.

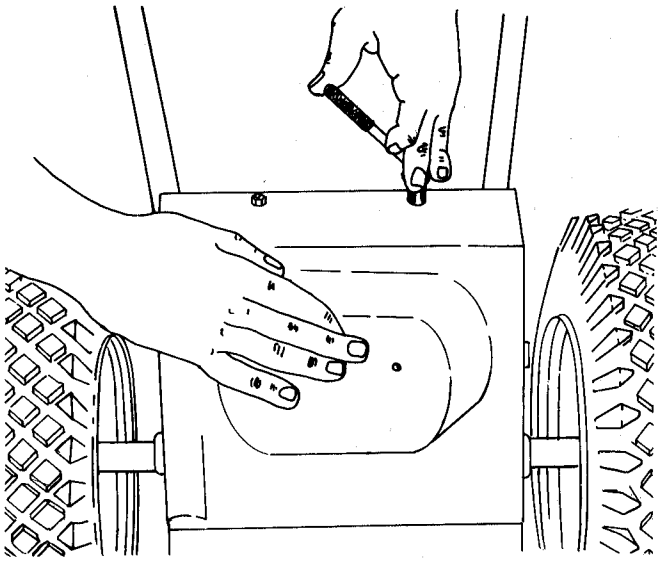


FIGURE 3.23 — REMOVING BOTTOM COVER

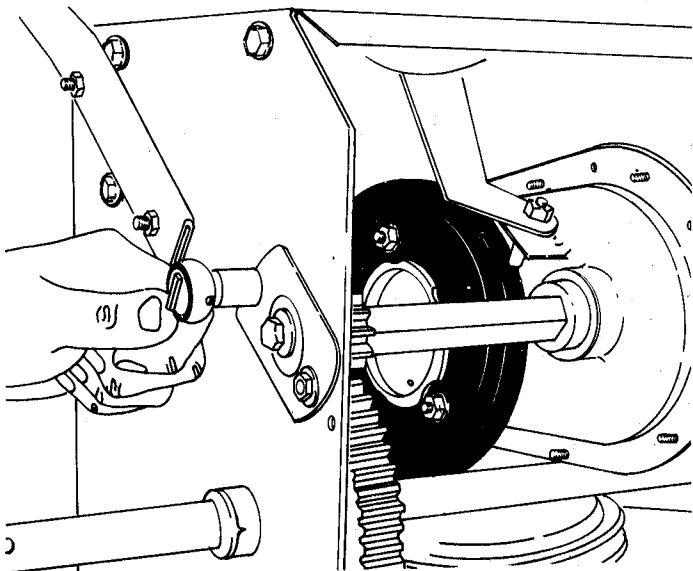


FIGURE 3.24 — REMOVING BEARING FLANGE NUTS

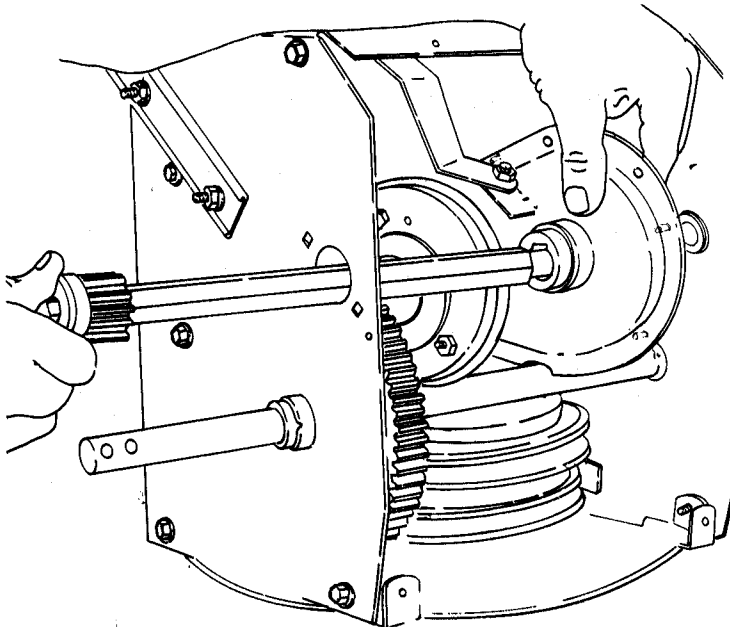


FIGURE 3.25 — PULLING HEX SHAFT

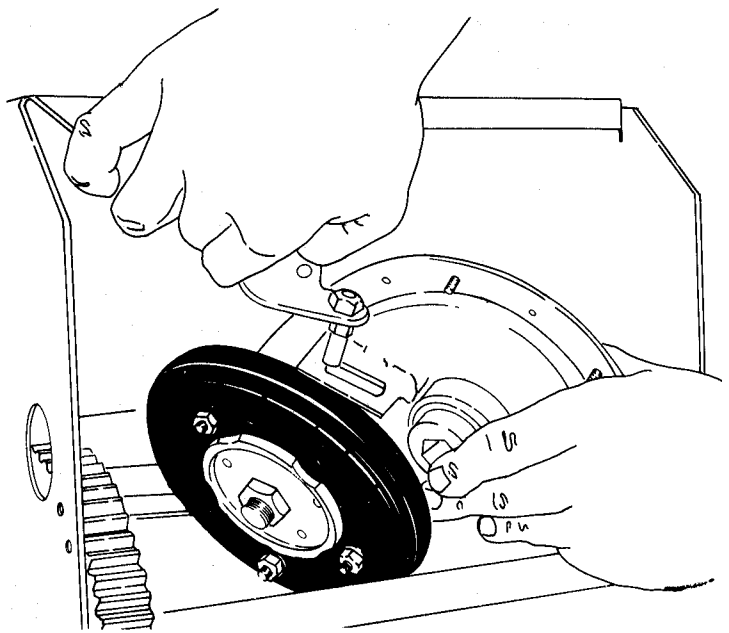


FIGURE 3.26 — TILT CHAIN CASE SIDWAYS

Traction drive components such as chain case and axle are especially easy to remove on the Snapper Snow Throwers. After taking the necessary steps to prevent fuel leakage from the tank, stand the unit on its blower housing and proceed as follows:

#### HEX SHAFT, CHAIN CASE REMOVAL

STEP 1: Remove the cover from the bottom of the frame (Figure 3.23).

STEP 2: Pull the wheel assembly from the left side then remove the two flange nuts and carriage bolts from the bearing retainer and remove the retainer. (Figure 3.24).

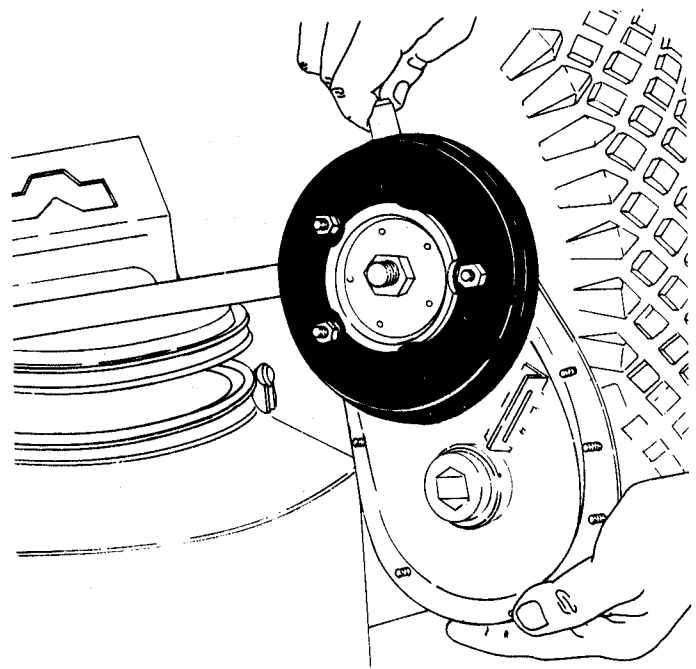


FIGURE 3.27 — CHAIN CASE REMOVAL

STEP 3: Pull the hex-shaft toward the left out of the frame. (Figure 3.25).

STEP 4: Tilt the chain case sideways and pull it out of the frame as shown in Figures 3.26 and 3.27.

### CHAIN CASE REPAIR

The Snow Thrower chain case is almost identical to the chain case used on Snapper Riding Mowers except that the Snow Thrower case uses a bushing for the hexshaft instead of the needle bearing used on the Riders. Recondition the chain case assembly as follows:

STEP 1: Remove the plug from the cover and allow the lubricant to drain out. NOTE: Just a small amount of Snapper 00 grease is required on the chain and sprocket hub — do not over lubricate these items.

STEP 2: Remove the screws securing the case cover to the sprocket case then pry the case halves apart.

STEP 3: Lift the internal components out of the case and carefully inspect each for damage.

STEP 4: Thoroughly clean all components. If the hexshaft bushings and/or sprocket ball bearings have to be replaced, press these out toward the inside of the case. Reverse direction when installing replacements.

STEP 5: Reassemble components in the sequence shown in Figure 3.28 and reinstall the chain case by reversing the removal procedure described earlier.

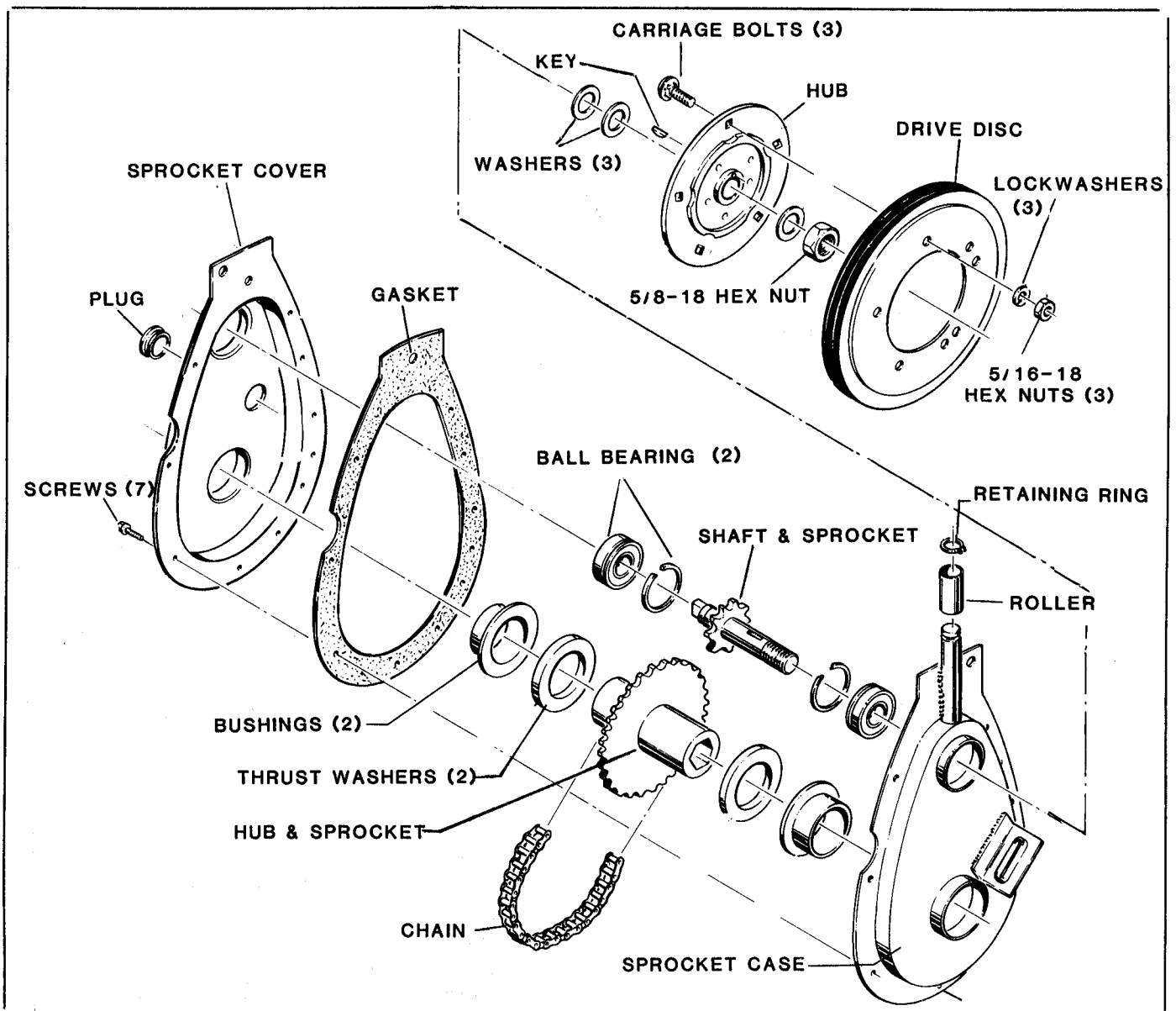


FIGURE 3.28 — CHAIN CASE EXPLODED VIEW

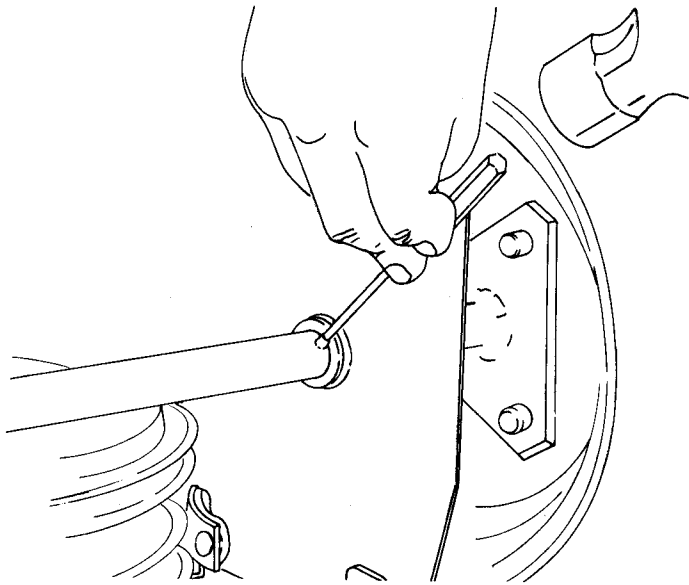


FIGURE 3.29 — AXLE DRIVE PIN REMOVAL

### AXLE AND DRIVE GEAR

With the left wheel removed, the axle and/or traction drive gear can be removed and replaced as follows:

**STEP 1:** Drive the roll pin out of the axle shaft on the right side as shown in Figure 3.29.

**STEP 2:** Hold the drive gear to prevent it from falling then slide the axle out toward the right side until the end clears the gear. If the axle does not have to be replaced, install the replacement gear and thrust washer (between gear and frame — Figure 3.30) then slide the axle back through to the left. Install the roll pin in the axle on the right side to complete the gear replacement procedure.

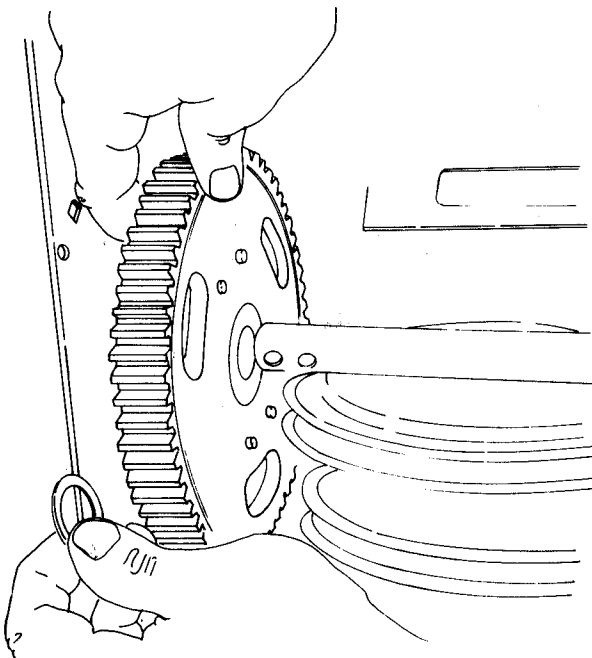


FIGURE 3.30 — PULLING DRIVE GEAR

**STEP 3:** If axle replacement is called for, remove the second roll pin and pull axle completely out of the frame toward the right, remove the right wheel assembly, and install the replacement axle by reversing the foregoing procedure.

### CLUTCH YOKE, FRAME BRACE

Access to the clutch yoke and/or frame brace for replacement purposes is obtained after the chain case and axle are pulled. If, for example, the clutch bracket (yoke) cross shaft is broken, repair as follows:

**STEP 1:** Detach and lift the engine off the frame brace studs.

**STEP 2:** Unhook the spring from the spring bracket, and disconnect the traction bellcrank and push rod (Figure 3.31).

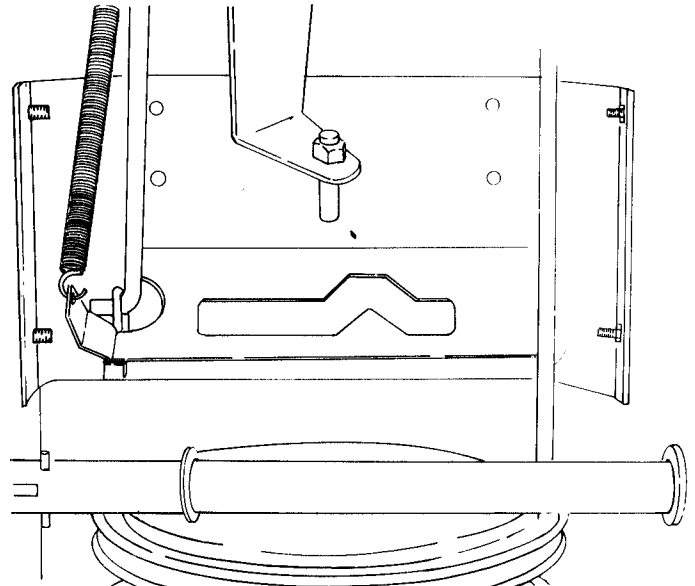


FIGURE 3.31 — YOKE AND FRAME BRACE DETAIL

**STEP 3:** Remove the four screws securing the frame brace to the sides of the frame.

**STEP 4:** Guide the frame brace out through the bottom of the frame. To separate the yoke from the brace, crimp the push caps (with vise grip pliers) until crushed, then remove and pull the shaft. Always install new push caps and tap on lightly to avoid distorting the heads.

**NOTE:** Should the push caps come off the ends of the cross shaft, it will not be necessary to pull the engine and remove the frame brace. Simply unhook the spring as described in Step 2 above, re-insert the cross shaft, block one end of the shaft, insert a new push cap in a greased end of a 1/2" box wrench and guide over the open end of the cross shaft. Repeat on other side if both caps came off.

# IV- SET-UP PROCEDURE SECTION

Snow throwers are shipped with handle bars and controls detached to provide lowest possible profile for shipment. After uncrating unit and inspecting for shipping damage, proceed as follows to set the unit up for delivery to the customer. Attaching hardware and cables are provided in the #6-0471 parts bag which accompanies each unit. Stand unit on blower housing while setting-up handles and controls.

**STEP 1 — HANDLE BARS:** Assemble to mounting studs protruding from sides of frame and secure with four flange locknuts — do not tighten at this time.

**STEP 2 — CONTROL PANEL:** Position between handle bars, align holes and insert four 5/16 x 1-1/2 capscrews with head on outside and secure with locknuts on inside. Tighten handle bar nuts first then panel capscrews.

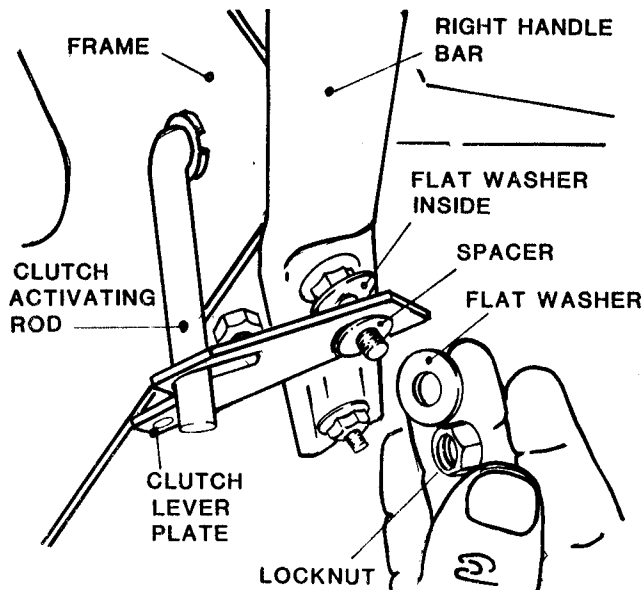


FIGURE 4.1 — LEVER PLATE RETAINING PARTS

**STEP 3 — BLOWER CLUTCH:** Place one 5/16" washer on upper right hand handle mounting stud, install spacer on stud, install clutch lever plate on spacer next with slot over the clutch activating rod, install another 5/16" washer on outside then secure with a 5/16-18 locknut. Refer to figure 4.1 for sequence. Connect one of the cables (two identical) with chain "S" hooked at top to the blower clutch control handle and the spring hooked through the small hole in the clutch handle lever. Adjust as needed by rehooking to different chain links until spring stretches 3/8" with handle depressed — cable must be slack when handle is released.

**STEP 4 — SHIFT ROD:** Assemble jam nut and connector to threaded end of upper shift rod. Pull end of lower shift rod as far as it will go out of frame, place shift handle in REVERSE then turn the connector on upper shift rod onto lower shift rod until top end lines up with hole in shift lever, back rod out 3-1/2 turns then insert top end through hole as shown in figure 4.2 and secure with 3/32 x 3/4 cotter pin. Turn jam nuts tight against the coupling.

**STEP 5 — THROTTLE CONTROL:** Uncoil throttle control cable from around engine, twist bracket end sideways to guide control knob through slot in control panel, align holes in the bracket with those in panel and secure throttle bracket with two self-tapping screws with heads on topside of panel. Throttle control setting may have to be adjusted at engine after mounting.

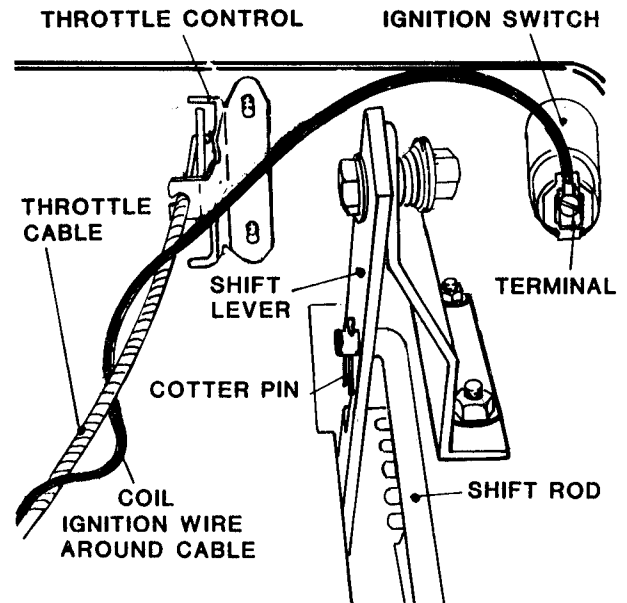


FIGURE 4.2 — CONTROL CONNECTION DETAIL

**STEP 6 — CHUTE CRANK:** Slide the crank rod through plastic bushing in control panel and connect lower end to swivel with the 1/8 x 1" cotterpin.

**STEP 7 — IGNITION SWITCH:** Unwrap ignition wire from around engine, coil it around the throttle control cable up to the control panel (to take up excessive slack) then run it across and connect eye to terminal screw on bottom of engine ignition switch as shown in figure 4.2.

**STEP 8 — TRACTION CLUTCH:** Hook spring end of remaining control cable to traction clutch lever protruding from frame case, attach chain to other end and hook "S" link to hole in traction clutch handle. Adjust chain length so that cable is slack when handle is released and spring stretches 3/8" when handle is fully depressed.

**STEP 9 — ELECTRIC START:** If setting up as an electric start model, follow instructions provided in starter kit to install and connect starting system.

To insure that the unit is in proper operating condition, perform the following checks and services before delivery.

**ENGINE SERVICES:** Add oil of proper weight and grade as needed to bring level up to full. Add test quantity of gasoline to fuel tank. Refer to Engine Owners Manual for details.

**SNOW THROWER SERVICES:** The unit is lubricated in the factory, however if it was stored for considerable time before set-up, lubricate as described in section 1, page 1.3. Check and adjust tire pressure to 15-20 psi if chains are to be installed or 12 psi if chains are not being used.

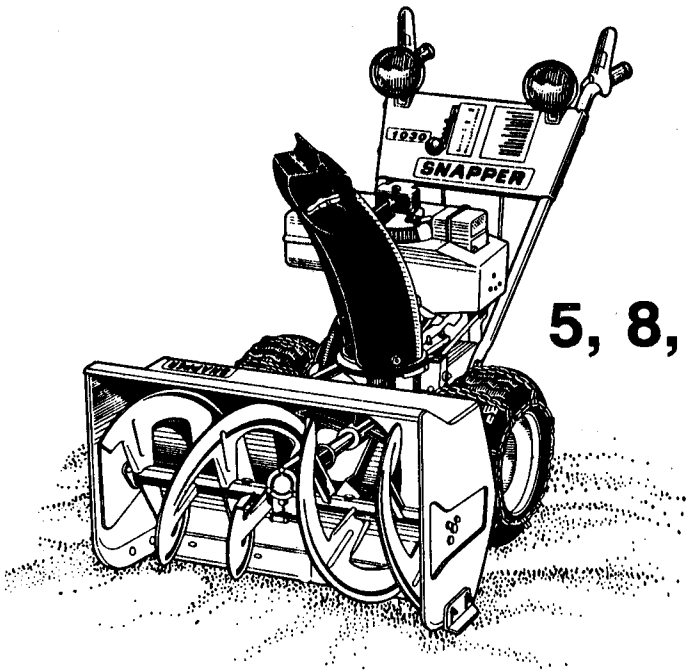
**UNIT TESTS:** Start engine and test operate unit outdoors at all speeds. Check operation of the blower and traction clutch controls for proper engagement and disengagement. Make sure augers and blowers stop when blower clutch is released. Check chute crank for easy operation and adjust as needed to free up. Test dual shut-offs independently to make sure engine stops when throttle control is moved to OFF and when ignition switch is moved to OFF position.



Service Manual for

**SNAPPER**<sup>®</sup>

**LARGE FRAME TWO-STAGE**



**5, 8, & 10HP**

**SNOW THROWERS**

**SNAPPER POWER EQUIPMENT**

McDonough, Georgia 30253

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**MANUAL #07004 (2/88 Update Issue)**



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